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Afrotropical Asilidae (Diptera) 9. The genus Hippomachus Engel, 1927 (Asilinae: Asilini)

by

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SYNOPSIS

The status of *Hippomachus* Engel, 1927, is discussed. Originally intended as a replacement name for the genus *Trichonotus* Loew, 1858, the name was first applied by Engel as a subgenus of *Neolophonotus* Engel, 1925. The four species now known to belong to this group are thought to be worthy of their own generic taxon and so *Hippomachus* is applied as a full genus. The four species are: *H. pegasus* (Loew)—the only species previously assigned to this group; *H. mivatus* (Walker)—transferred from *Neolophonotus* (but originally described as an *Asilus*); *H. hermanni* and *H. engeli*—two new species from east and southern Africa respectively.

INTRODUCTION

This is the fourth paper in a series dealing with what Oldroyd (1974) called the '*Neolophonotus*-group of genera'. So far I have dealt with *Dysclytus* (1979), *Synolcus* (1980) and *Dasophrys* (= *Hobbyus*) (1981). In addition to these genera Oldroyd (1974) lists only *Neolophonotus* itself as part of the group. Following Engel (1927), Oldroyd (1974) listed *Megadrillus* Bigot, *Lophopeltis* Engel, *Lophybus* Engel, *Hippomachus* Engel and *Neolophonotus* Engel as subgenera of *Neolophonotus*. My research on *Neolophonotus* (still to be published) leads me to believe that these subgeneric taxa have no value at all, except in the case of *Hippomachus*. I have, in this paper, indicated my reasons for accepting *Hippomachus* as a full genus.

MATERIAL AND METHODS

Morphological nomenclature follows McAlpine (1981). Wing length is measured from humeral cross-vein to tip, breadth through the first fork of the radial sector. Male genitalia were dissected from specimens, cleared in hot KOH and drawn with the aid of a drawing tube. Specimens studied are housed in the following museums: Natal Museum (NM), Pietermaritzburg; Naturhistoriska Riksmuseet (NRS), Stockholm; Zoologische Staatssammulung (ZSM), München; Muséum National d'Histoire Naturelle (MNP), Paris.

Hippomachus Engel, 1927

Trichonotus Loew, 1858: 365 (also 1860: 165). Type species: *T. pegasus* Loew, 1858 by monotypy.
Hippomachus Engel, 1927: 148. Replacement name for *Trichonotus*—preoccupied Schneider 1801. Applied by Engel as a subgenus.

Diagnosis: *Hippomachus* is characterised by the following combination of characters. Mesonotum with a well-defined narrow black mane; wing strongly dilated

anteriorly in the male sex; vein M_3 not bulging forwards into discal cell as in *Synolcus*, but straight and almost parallel with M_{1+2} over entire length; cross-vein r–m positioned at a point at least three-quarters the way along the discal cell distally; vein R_4 with characteristic sinuous appearance, bulging forwards at mid-length; profile of face slightly convex as in *Dasophrys* but more obvious dorsally than ventrally (the opposite true of *Dasophrys*); ovipositor laterally compressed, and in lateral view about twice as long as wide.

Key to species of *Hippomachus*

Hippomachus species, like most species in the *Neolophonotus* group of genera, are characterised mainly on features of the male genitalia. It is therefore important to study these before making a final identification.

1 Ocellar setae black; postocular setae white; terga 3–5 with well-developed bristles on hind margin; ♂ genitalia as in Figs 8–11 ..... **mivatus** (Walker)
– Ocellar setae white; at least a few postocular setae black or brown; terga 3–5 with poorly developed marginal bristles 2
2 Bristles of ventral aspect of hind femora dark red-brown; ♂ genitalia as in Figs 16–18 ..... **hermanni** sp. n.
– Bristles of ventral aspect of hind femora orange 3
3 ♂ genitalia as in Figs 3–6. Style twice as long as gonocoxites . . **pegasus** (Loew)
♂ genitalia as in Figs 13–15. Style about as long as gonocoxites . **engeli** sp. n.

Hippomachus pegasus (Loew, 1858) Figs 1, 3–7

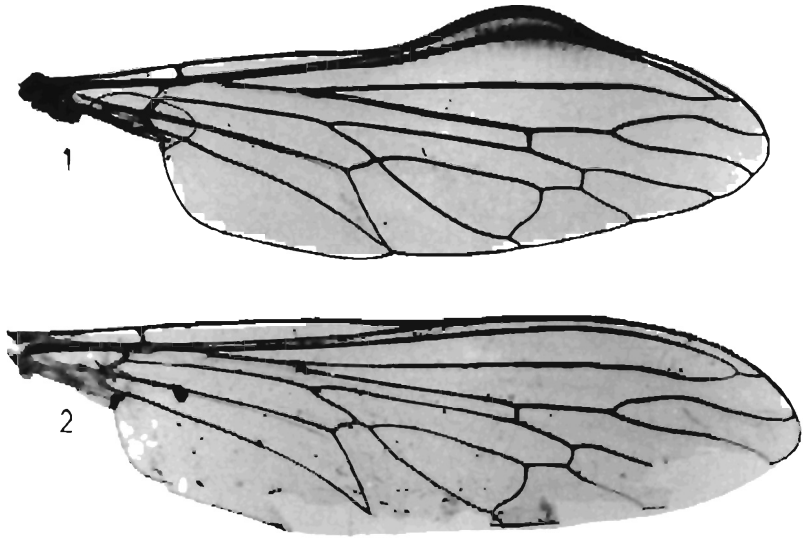
Trichonotus pegasus Loew, 1858: 365 (also 1860: 165).
Neolophonotus (Hippomachus) pegasus; Engel, 1927: 149.
Hippomachus pegasus; Hull, 1962: 521–3.
Neolophonotus pegasus; Oldroyd, 1980: 341.

H. pegasus was described by Loew (1858) and placed in its own genus *Trichonotus*. Engel (1927) discovered that *Trichonotus* was a junior homonym and provided the name *Hippomachus* as a replacement. He considered, however, that *Hippomachus* was a subgenus of *Neolophonotus*. This opinion was obviously not accepted by Hull (1962) who considered it a full genus. Oldroyd (1974) disregarded Hull and repeated Engel's suggestion although with apparent reservation. In 1980 Oldroyd was still undecided as to what to do with *pegasus* and placed the species under *Neolophonotus* pending further research. The only other author to mention *pegasus* was Efflatoun (1934) who recorded it from Egypt. I doubt this record and suggest that his specimen should be considered as a representative of *H. mivatus* (Walker). Although *pegasus* has been well described by Loew, Engel and Hull, I provide the following brief redescription for comparative purposes.

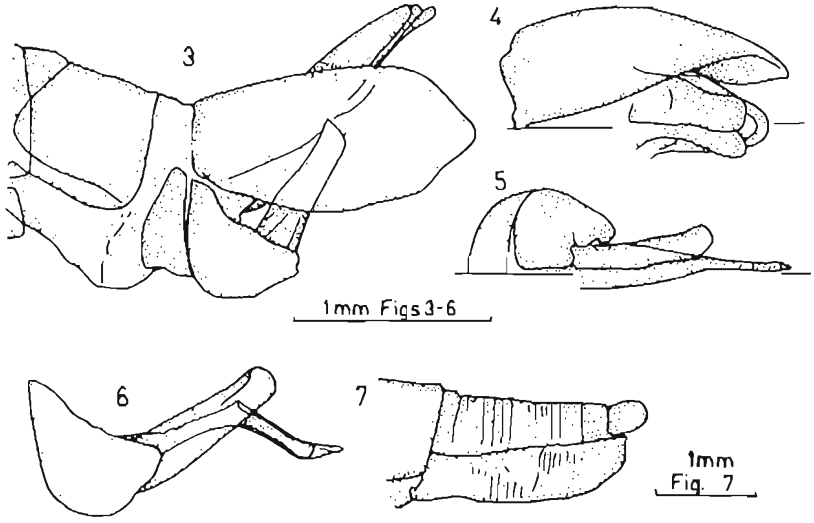
Redescription: Based on the holotype and two other specimens as listed below.

Head: Antenna dark red-brown with dark red-brown bristles and setae (a few white setae dorsally on segments 1 and 2). Mystax mainly white with dark red-brown setae mixed with white ones in dorsal half. Ocellar setae long fine white. Postocular bristles fine seta-like dark red-brown and white, proclinate.

Thorax: Mesonotum prominent with well-developed narrow dark red-brown mane which extends along entire length although it is weak posteriorly. Postpro-



Figs 1–2. *Hippomachus* species, wing. 1 *H. pegasus* Loew, holotype male 2. *H. mivatus* (Walker), holotype female



Figs 3–7 *Hippomachus pegasus* (Loew), genitalia. 3–6. Male, holotype. 3. Lateral. 4. Dorsal (excluding epandrial lobe). 5. Ventral. 6. Lateral aspect of gonocoxite, style and aedeagus. 7. Moremi female ovipositor (dry).

notal lobes with a good group of fine white setae. Two to three orange notopleural bristles; 1–2 dark red-brown or orange supra-alars; 1 orange postalar. Scutellum with about 8 thin white marginal bristles and a few white setae; disc with numerous white setae. Pleural setae fine long yellowish. Wing: 8,5 × 2,9 mm (holotype). ♂ wing dilated, ♀ wing undilated, in costal area. Venation (Fig. 1) dark brown. Legs: femora dark red-brown; tibiae orange-brown dorsally (less so on metathoracic legs), dark brown ventrally; tarsi dark red-brown; bristles mostly orange but there are a few dark red-brown ones as well.

Abdomen: Terga and sterna with long fine white setae (shorter and dark red-brown mid dorsally); hind margins of terga with fine thin poorly developed seta-like bristles. ♂ genitalia as in Figs 3–6. Styli longer than length of gonocoxites in lateral view. ♀ segments 7 and 8 shiny black, laterally compressed; segment 8 twice as long as wide in lateral view (Fig. 7).

Material examined: 1 ♂ holotype, bears no locality data, only four small labels as follows '63', '305', '$\frac{386}{80}$' and a green label 'Riksmuseum Stockholm' (NRS). SOUTH AFRICA: *Transvaal:* 1 ♂, Pietersburg, 11.ix.1915, H. K. Munro (NM). BOTSWANA: 1 ♀, Mbomba Island, Moremi Reserve, 20°17'E:19°11'S, A. Russell-Smith, 12.ix.1977, in sparse *Acacia nigrescens* woodland on game tracks, sandy soil (NM).

Remarks: Loew (1858) gave 'Caffraria (Wahlb)' as the locality data. Wahlberg collected in many parts of the western Transvaal not too far from Pietersburg where one of my specimens was found. I therefore designate Pietersburg as the type locality for *pegasus*.

Hippomachus mivatus (Walker, 1871) **comb n.** Figs 2, 8–12

Asilus mivatus Walker, 1871: 259.
Apoclea algira Efflatoun, 1934: 93 (nec Fabricius, 1794). Hull, 1962: 454.
Neolophonotus mivatus; Oldroyd, 1980: 341.

Walker (1871) described *mivatus* on a single female specimen from Egypt 'Tajura, Wâddy Nash'. For some reason unstated, Efflatoun (1934) placed this species (spelt *mivata*) as a synonym of *Apoclea algira* Fabricius. I have seen the type and can state with certainty that it is not an *Apoclea*. Hull (1962) accepted this synonymy while Oldroyd (1980) provisionally placed the species in the genus *Neolophonotus*. Although the type is in poor condition the wing is definitely that of a *Hippomachus*. I have seen a number of specimens from north-east Africa and believe that these are conspecific. Amongst these specimens are a few males which belong to *Hippomachus* but are distinct from *pegasus*. I therefore accept *mivatus* as a valid species of *Hippomachus* and provide the following brief description to supplement those of Walker (1871) and Efflatoun (1934) (who described the species under the name of *Hippomachus pegasus*). Redescription: Based on the holotype ♀ but supplemented with data from other material examined.

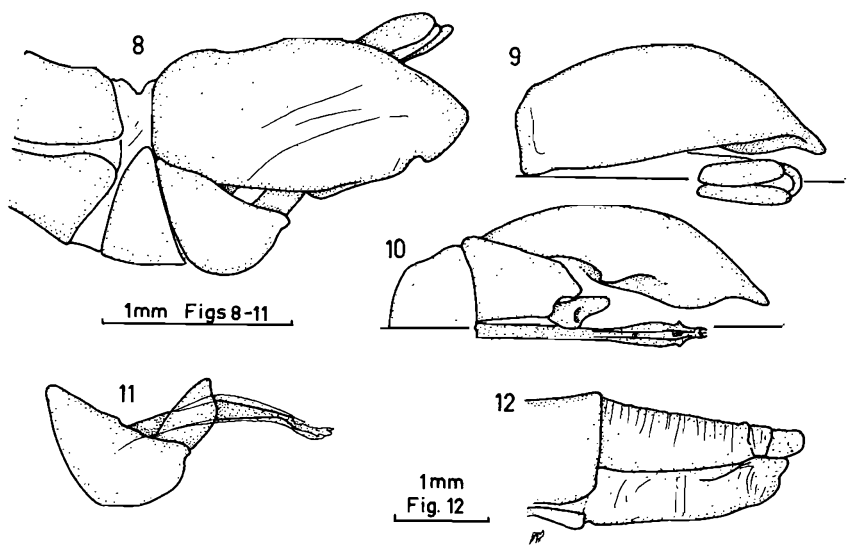
Head: Antenna similar to *pegasus*, bristles and setae of variable colour, predominantly blackish but there are usually some white ones as well. Mystax white with one or two black setae in extreme dorsal part. Ocellar setae dark red-

brown. Postocular bristles white (yellowish in type), moderately well developed, proclinate.

Thorax: Similar to *pegasus* but mane may have white setae in posterior one-quarter. Postpronotal lobes with only a few fine white setae. Three to four notopleural bristles, 2–3 supra-alars, 1–3 (usually 2) postalars, all yellow-white. Scutellum with 8–10 white marginal bristles. Pleural setae white or yellow-white. Wing: Ranges from 5,6 × 1,7 (Quadda ♀) to 8,4 × 2,6 mm (holotype). Venation of holotype as in Fig. 2; male wing similar to *pegasus*. Legs: Dark red-brown but proximodorsal part of tibia yellow-brown; bristles predominantly yellow-white but there are a few dark red-brown ones on most segments.

Abdomen: Terga and sterna with moderately long white setae—no dark red-brown ones evident dorsally; terga with moderately well-developed white or yellow-white bristles along hind margin laterally. ♂ genitalia as in Figs 8–11, aedeagus with spiny projections laterally near tip. ♀ ovipositor (Fig. 12) similar to *pegasus*.

Material examined: EGYPT: 1 ♀ holotype, Tajura, Straits, Bab-el-Mendeb, J. H. Lord, Pres. R. Mandola (BMNH). DJIBOUTI: 1 ♂ (now defective), Djibouti, Maindron, 871–93 [1893] (MNP); 1 ♂, Djibouti, H. Coutiere, 1897 (MNP); 1 ♂ 1 ♀, Obock, Maindron, 871–93 (MNP); 3 ♀, Obok [= Obock], Jousseaume, 7–97 [1897] (MNP). CENTRAL AFRICAN EMPIRE (?): 2 ♀, Somalie Angl., Quadda, Jousseaume, 7.97 (MNP). KENYA: 1 ♂, Turkana, 20 km W. of Elige Springs, 03°16′N:35°50′E., 427 m, 6.vi.1980, B. Lamoral (NM). The localities of Tajura and Quadda are given as being in Libya and the Central African Empire in atlases consulted but there may be other places bearing these names which do not appear in my sources of reference. J. H. Lord apparently collected in Egypt and



Figs 8–12. *Hippomachus mivatus* (Walker), genitalia. 8–11. Obock male. 8. Lateral. 9. Dorsal. 10. Ventral. 11. Lateral aspect of gonocoxite, style and aedeagus. 12. Holotype female ovipositor (dry).

Arabia and so I assume Tajura is in Egypt. Quadda, according to the insect label, is in 'Somalie Angl.' (British Solaliland) which is part of present-day Somalia. I can find no such place in Somalia. The only place that I can find bearing this unusual name lies at 80°9'N:22°20'E in the Central African Empire some distance west of Somalia. It is possible that the label data are incorrect.

Remarks: *H. mivatus* is a widely distributed species which occurs in both the Afrotropical and Palaearctic Regions. While I have not seen the single male recorded by Efflatoun (1934) from Egypt (under *H. pegasus*) I am reasonably sure it must be conspecific with *mivatus*. The more important similarities being the black ocellar bristles and the form of the male genitalia. This Egyptian locality 'Gebel Alba (Wadi Kanssissrob) 29.i.1933, Farag Ayed' cited by Efflatoun could not be traced using sources available to me.

Hippomachus engeli sp. n. Figs 13–15

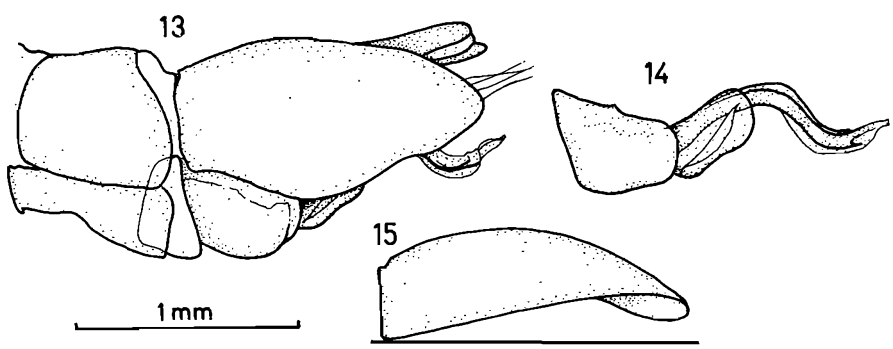
Named for Dr E. O. Engel in recognition of his pioneering work on this difficult group of Asilidae.

Description: Based on the unique holotype.

Head: Antenna similar to *pegasus*, bristles and setae of segments 1 and 2 entirely dark red-brown. Mystax similar to *pegasus*. Ocellar setae long, fine white as in *pegasus*. Postocular bristles fine dark red-brown, one or two yellow proclinate.

Thorax: Similar to *pegasus*. Dark red-brown setae of mane stop midway between transverse suture and scutoscutellar suture. Postpronotal lobes with a good group of fine white setae as in *pegasus*. Three notopleural bristles, 1 supra-alar, 1 post-alar, all orange. Scutellum with white bristle-like setae on posterior margin (bristles and setae not clearly differentiated); disc with many white setae but there are a few dark brown ones centrally. Pleural setae fine yellowish as in *pegasus*. Wing: 8,3 × 2,7 mm. Venation as in *pegasus*. Legs: Femora dark red-brown, tibiae and tarsi orange-brown; bristles of femora mostly orange but with a few dark red-brown ones distally.

Abdomen: Similar to *pegasus*. ♂ genitalia as in Figs 13–15. Styli about as long as gonocoxites; aedeagus thickish and sinuose in lateral view.



Figs 13–15. *Hippomachus engeli* sp. n. holotype male genitalia. 13. Lateral. 14. Lateral aspect of gonocoxite, style and aedeagus. 15. Dorsal view of epandrial lobe.

Material examined: ZIMBABWE: 1 ♂ holotype, Druid Mine, Filabusi, S.R., 20.ix.1923, R. Stevenson (NM).

Remarks: This species is similar to *pegasus* but can be easily separated from *pegasus* on characters of the male genitalia. I have seen 2 ♀ from 'Niger, env. d'Agadès, Nov. 1938' in NMP which appear to be very similar to *engeli*. Until males are available their identity cannot be determined with certainty.

Hippomachus hermanni sp. n. Figs 16–18

Named for Prof. F. Hermann in recognition of his work on Afrotropical Asilidae.

Description: Based on the unique holotype.

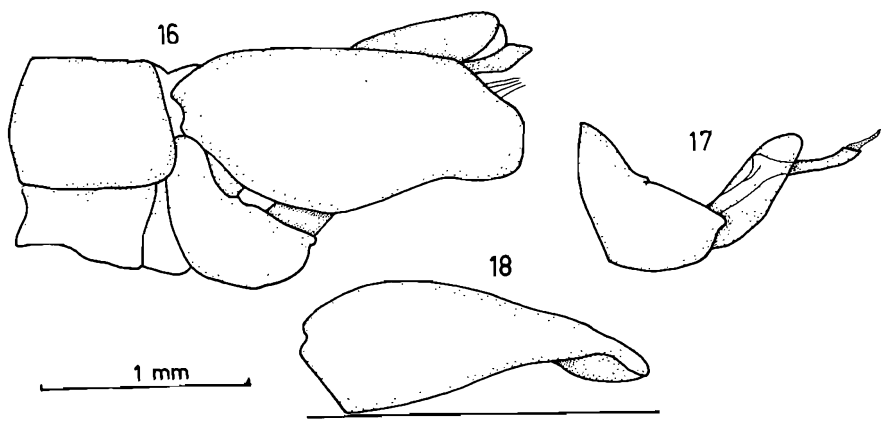
Head: Antenna similar to *pegasus* with dark red-brown setae on segments 1 and 2. Mystax white with some blackish setae dorsally and laterally on lower facial margin. Ocellar setae long thin white. Postocular bristles fine, mostly yellow but a few dark red-brown ones present, proclinate.

Thorax: Mesonotum as in *pegasus*; mane well developed extending almost to hind margin. Postpronotal lobes with long fine white setae. Three notopleural bristles, 1–2 supra-alars; 1–2 postalars, all brown-orange. Scutellum with *c.* 10 long yellow-white marginal bristles mixed with white setae; disc covered with longish white setae. Pleural setae mostly fine yellowish. Wing: 10,0 × 3,3 mm venation as in *pegasus*. Legs: Dark red-brown except for proximodorsal parts of tibiae which are brown-yellow; femora with dark red-brown bristles except for those laterally which are orange.

Abdomen: As in *pegasus*. ♂ genitalia as in Figs 16–18.

Material examined: 1 ♂ holotype, Africa occ. (ZSM). The specimen bears only a single pink label 'Africa occ. *Trichonotus pegasus* Loew', probably written by Dr Hermann.

Remarks: A species closely related to both *pegasus* and *engeli*, but demonstrating differences in male genital form which I consider to be specific.



Figs 16–18. *Hippomachus hermanni* sp. n. holotype male genitalia. 16. Lateral. 17. Lateral aspect of gonocixite, style and aedeagus. 18. Dorsal view of epandrial lobe.

DISCUSSION

Hippomachus is a widely distributed but poorly collected genus ranging between South Africa in the south, Egypt in the north, Somalia in the east and Niger in the west. Fewer than twenty specimens are known to me. Males are readily separated from males of *Neolophonotus* as they possess expanded wings similar to those found in the two southern African genera, *Dasophrys* and *Synolcus*. Both sexes do, however, look a lot like *Neolophonotus* in that they possess a well-developed mane, a feature lacking in *Dasophrys* and *Synolcus*. The female of *Hippomachus* possesses a laterally compressed ovipositor which is at least twice as long as broad and in this respect resembles females of *Dasophrys* and *Synolcus*. The male genitalia resemble the form found in *Dasophrys* in that the epandrial lobes are simple and the styli sometimes elongate; the aedeagus is, however, rather different. Virtually nothing is known about the preferred habitat of *Hippomachus* but, as it has been captured in areas known to be arid, it is likely that they live in dry sandy places like many *Neolophonotus* species.

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REFERENCES

EFFLATOUN, H. C. 1934. A monograph of Egyptian Diptera. Part IV. Family Asilidae (Section 1) *Mém. Soc. r. ent. Egypte* **4**(2): 1–198.

ENGEL, E. O. 1927. Notes on some Asilidae of the South African region. *Ann. Transv. Mus.* **12**: 132–180.

HULL, F. M. 1962. Robber Flies of the world. The genera of the family Asilidae. *Bull. U.S. natn. Mus.* **224**(1): 1–430, (2): 431–907.

LOEW, H. 1858. Bidrag till kännedomen om Afrikas Diptera [part]. *Öfvers. K. VetenskAkad. Förh. Stockh.* **14** (1857): 337–383.

LONDT, J. G. H. 1979. The genus *Dysclytus* Loew (Diptera: Asilidae). *J. ent. Soc. sth. Afr.* **42**(2): 217–223.

——— 1980. The genus *Synolcus* Loew (Diptera: Asilidae). *J. ent. Soc. sth. Afr.* **43**(1): 23–40.

——— 1981. Afrotropical Asilidae (Diptera) 5. The genus *Dasophrys* Loew, 1858 (= *Hobbyus* Bromley, 1952) (Asilinae: Asilini). *Ann. Natal Mus.* **24**(2): 635–699.

MCALPINE, J. F. 1981. *Manual of Nearctic Diptera*. Volume 1. Chapter 2. Morphology and terminology—Adults. Research Branch Agriculture Canada. Monograph No. 27. pp. 9–63.

OLDROYD, H. 1974. An introduction to the Robber Flies (Diptera: Asilidae) of southern Africa. *Ann. Natal Mus.* **22**(1): 1–171.

——— 1980. Asilidae. pp. 334–373. *In:* Crosskey, R. W. (ed). *Catalogue of the Diptera of the Afrotropical Region*. London: Brit. Mus. (Nat. Hist.).

WALKER, F. 1871. List of Diptera collected in Egypt and Arabia, by J. K. Lord, Esq., with descriptions of the species new to science. *Entomologist* **5**: 255–263.

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